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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,579	07/29/2003	Mark C. Carroll	22129-00007-US1	4098

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EXAMINER	
MORILLO, JANELL COMBS	
ART UNIT	PAPER NUMBER
1742	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,579	CARROLL ET AL.	
	Examiner	Art Unit	
	Janelle Combs-Morillo	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,5,7,9,10,16,22,24,25,38,39,42 and 43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,5,7,9,10,16,22,24,25,38,39,42 and 43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Interpretation

1. The instant claims are drawn to a modified AA5083 alloy, wherein the Aluminum Association's 5083 specification is as follows:

4.0-4.9% Mg
0.05-0.25% Cr
0.4-1.0% Mn
0.25% Zn max.
0.10% Cu max.
0.40% Si max.
0.40% Fe max.
0.15% Ti max.
0.05% other each
0.15% other total
balance aluminum

2. If this interpretation is not consistent with applicant's intended interpretation, please clarify (including where said interpretation is found in the original specification, etc.) in response to this action.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 4, 5, 7, 9, 10, 38, 39, 42, 43 are rejected under 35 U.S.C. 102(b) as being anticipated by "Compositional Changes to tau-phase grain boundary precipitates in the presence

of minor levels of Ag and Ag+Cu in modified 5083 aluminum alloys", Electrochemical Society Proceedings, 2000, Carroll et al.

Carroll teaches a modified 5083 alloy with: 0.60% Zn, 0.13% Cu, 0.10% Ag (p 356), or 0.55% Zn, 0.10% Cu, 0.20% Ag (p 359), wherein said alloy is subject to a sensitization treatment thereby obtaining the quaternary τ-phase at the grain boundaries (p 362), substantially as presently claimed.

Carroll does not mention the temperature for sensitization, however, with respect to the product by process, applicant has not shown a material difference between sensitizing at 80-200 °C as claimed, and the sensitized aluminum alloy taught by Carroll (see p 362, etc). Therefore it is held that Carroll anticipates the presently claimed invention.

Concerning claim 38, 39, which mention various properties related to said τ-phase or the sensitization treatment, because Carroll teaches an example within the instantly claimed alloying ranges, and wherein said alloy is subjected to a sensitization treatment, then substantially the same effects, such as simulation of actual conditions of use, is held to be inherently present. Because Carroll teaches an identical alloy processed substantially as presently claimed, then substantially the same properties, such as mass loss or elongation, are expected to be inherently present.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4, 5, 7, 9, 10, 16, 22, 24, 25, 38, 39, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haszler (US 6,342,113).

Haszler teaches Al-Mg alloy comprising (in wt%): 5-6% Mg, 0.6-1.2% Mn, 0.4-1.5% Zn, 0.05-0.25% Zr, max. 0.3% Cr, max. 0.4% Cu, max. 0.4% Ag (column 2 lines 64-66, column 3 lines 1-9), which overlaps or touches the boundary of the presently claimed alloying ranges of Mn, Zn, Zr, Cr, Cu, Ag and is a close approximation of the presently claimed range of Mg (AA registered alloy 5083 contains 4.0-4.9% Mg).

A prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Because Haszler teaches alloying ranges that overlap, or are a close approximation of the presently claimed alloying ranges, it is held that Haszler has created a prima facie case of obviousness of the presently claimed invention.

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Concerning claims 4, 7, 28, 42, 43, which mention a tau phase or a sensitization treatment (and/or properties related to said phase or treatment), Haszler mentions said Al-Mg alloy is exposed to temperature of 100°C (ex. 3 of Haszler, see esp. column 10 lines 47-50), which simulates the actual service temperature, which falls within the presently claimed heat treatment

temperature. Additionally, Haszler teaches heat treating at a minimum temperature of 200°C, which touches the boundary of the presently claimed heat treatment maximum.

The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Therefore, if the prior art teaches a substantially identical chemical structure, the properties applicant discloses and/or claims (tau phase, mass loss, elongation) are expected to be present. See MPEP 2112.01.

Concerning claims 16, 22, 24, 25, Haszler teaches said alloy is particularly suitable for large welded structures such as storage containers, vessels for marine and land transportation, tanks, etc. (column 1 lines 13-17).

7. Claims 4, 5, 7, 9, 10, 16, 22, 24, 25, 38, 39, 42, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Compositional Changes to tau-phase grain boundary precipitates in the presence of minor levels of Ag and Ag+Cu in modified 5083 aluminum alloys", Electrochemical Society Proceedings, 2000, (hereinafter Carroll) in view of Haszler.

Carroll and Haszler are discussed in paragraphs above.

Concerning claims 4, 7, 28, 42, 43, which mention a tau phase or a sensitization treatment (and/or properties related to said phase or treatment), Carroll does not mention the temperature for sensitization, however, with respect to the product by process, applicant has not shown a material difference between sensitizing at 80-200 °C as claimed, and the sensitized aluminum alloy taught by Carroll (see p 362, etc). Alternatively, Haszler mentions said Al-Mg alloy is exposed to temperature of 100°C (ex. 3 of Haszler, see esp. column 10 lines 47-50), which

simulates the actual service temperature, which falls within the presently claimed heat treatment temperature. It would have been obvious to one of ordinary skill in the art to heat the Al-Mg alloy taught by Carroll to a high temperature such as 100 °C as taught by Haszler, because Haszler teaches said temperature simulates actual service temperature.

Concerning claims 16, 22, 24, 25, Carroll does not mention said alloy is in the form of a marine product, etc. However, Haszler teaches substantially similar 5xxx series aluminum alloys are particularly suitable for large welded structures such as storage containers, vessels for marine and land transportation, tanks, etc. due to their excellent weldability and corrosion resistance (column 1 lines 13-17, column 2 lines 55-57). It would have been obvious to one of ordinary skill in the art to form the 5xxx series alloy taught by Carroll into a large welded structure, such as a marine vehicle, because Haszler teaches substantially similar 5xxx series aluminum alloys are particularly suitable for large welded structures such as storage containers, vessels for marine and land transportation, tanks, etc. due to their excellent weldability and corrosion resistance (column 1 lines 13-17, column 2 lines 55-57).

Response to Amendment

8. In the response filed on October 12, 2006, applicant submitted various arguments traversing the rejections of record.

9. The examiner agrees that the rejections in view of "Effects of minor Cu additions on a Zn-modified Al-5083 alloy" have been overcome (see MPEP 2132.01, Ex parte Kroger, etc.).

10. Applicant's argument that the present invention is allowable over the prior art of record because the ranges taught by Haszler no longer overlap the presently claimed alloying range of

Mg has not been found persuasive. It is unclear that an aluminum based alloy as taught by Haszler with **5.0% Mg** exhibits distinct properties, materially distinct alloy product, etc. as compared to an aluminum alloy as claimed with **4.9% Mg** max. As stated above, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Because Haszler teaches alloying ranges that overlap, or are a close approximation of the presently claimed alloying ranges, it is held that Haszler has created a prima facie case of obviousness of the presently claimed invention.

11. Applicant's argument that the present invention is allowable over the prior art of record because the quaternary Tau phase is not expected to form for Haszler, has not been found persuasive because Applicant has not clearly shown an unobvious difference between the instant invention and the prior art's *substantially similar Al-Mg-Mn-Cu-Zn alloy product*. More particularly, once a reference teaching product appearing to be substantially identical is made the basis of a rejection, and the examiner presents evidence or reasoning tending to show inherency, the burden shifts to the applicant to show an unobvious difference. "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA

1977)), see MPEP 2112. In re Schreiber, 128 F.3d 1473, 1478, 44 USPQ2d 1429, 1432 (Fed.Cir.1997).

12. Applicant's argument that the present invention is allowable over the prior art of record because Haszler teaches away form the instantly claimed invention has not been found clearly persuasive. The description of Ex. 3 of Haszler mentions the precipitation of anodic intermetallics on the grain boundaries (col. 10 lines 41-43), as well as continuous boundary network of anodic intermetallics for increased exposure time (col. 10 lines 45-46) for AA5083. The example of Haszler D1 does not form continuous grain boundary precipitates (col. 10 lines 55-56), but rather forms anodic intermetallics within the grains even after prolonged exposure (col. 10 lines 47-50). It is unclear that because Haszler teaches against *continuous* grain boundary precipitation that Haszler teaches against a quaternary Al-Mg-Zn-Cu phase formed at grain boundaries after a heat treatment at 80-200°C.

13. Applicant's argument that the present invention is allowable over the prior art of record because the prior art does not teach improved resistance to SCC has not been found persuasive. Applicant has not clearly shown specific unexpected results with respect to the prior art of record or criticality of the instant claimed range (wherein said results must be fully commensurate in scope with the instantly claimed ranges, etc. see MPEP 716.02 d).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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JCM
December 22, 2006